WisDOT RD&T Home

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Putting Research to Work

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Designing for the Future

Central Wisconsin Interchange Project Improves Safety, Saves Money

A recent project in Waupaca, Wis., replaced a deadly intersection on US 10 with a new interchange and frontage roads, eliminating 23 dangerous access points from the highway. Combining the construction with an airport runway project reduced earthwork costs. The project won OMNNI Associates a 2005 Project of the Year Award from the Wisconsin chapter of the American Public Works Association. See the news release at http://www.omnni.com/News.asp?ID=47, and read more about the project at http://www.omnni.com/PPTR01.htm.

Concrete Barriers May Reduce HOV Lane Crashes

A recent Texas Transportation Institute study found that accidents involving injuries rose when high-occupancy vehicle lanes were added to roadways without a concrete barrier separating them from other traffic, allowing drivers to illegally weave in and out of the faster-moving HOV lanes. Dallas traffic planners are considering separating HOV lanes with pylons instead of concrete on an upcoming project where space is at a premium. Read the *Wall Street Journal* article in the *Pittsburgh Post-Gazette* at http://www.post-gazette.com/pg/05172/525941.stm, and see the study at http://tti.tamu.edu/documents/0-4434-1.pdf and the research brief at http://tti.tamu.edu/documents/0-4434-S.pdf.

Value Engineering Leads IDOT to Innovative Pier Design

Two bridges over I-74 near Peoria, Ill., use unique tied-arch concrete piers to simultaneously support the bridge and span a large drainage channel in the center of the highway. Bridge designers Alfred Benesch & Company worked with Illinois DOT to perform a value engineering study that led to the cost-effective, innovative pier design. The project won two Honor Awards from the American Council of Engineering Companies of Illinois (see http://www.acec-il.org/exawards_honor05.cfm; scroll to the third and last projects).

Timber a Viable Alternative in Bridge Design

Often overlooked in bridge design, treated timber can be a cost-effective alternative to steel and concrete. Because of their relative thinness, dowel-laminated timber panels can be used where clearance is a concern; a Minnesota county highway department used the system in 1999 over a popular boating area. In addition, treated timber can be installed in cold weather, when cast-in-place concrete is more difficult to work with. Read more in *Bridges Magazine* at http://www.bridgebuildermagazine.com/ME2/Audiences/dirmod.asp?sid=&nm=&type=Publishing&mod=Publications%3A%3ABB+Articles&mid=6E82BAC0CEF34C7F912D607986507460&AudID=FA0B7EC5E4FA43DB8CE50898D8DCA098&tier=4&id=AB140BB5FC884920A040217C38148261.

Construction and Materials Innovations

Wisconsin Contractors Move Bridge, Pave New Deck in One Weekend

In Saukville, Wis., contractors have overcome several challenges in road and bridge work on WIS 33 over the Milwaukee River. The first trick was to move the existing steel truss 20 feet south to temporary abutments in one weekend to accommodate decking of a new, post-tensioned bridge. The actual move took three and a half hours in snow, and the relocated bridge was open to traffic by Sunday night. The new bridge sinks one pier into the river and two on opposite banks, allowing fish spawning to continue. See the *Western Builder* article at http://www.acppubs.com/article/CA605320.html.

High-Performance Steel Bridgework Catching On

Developed by FHWA, the U.S. Navy, and industry groups, high-performance steel offers a stronger, crack-resistant material for bridge work. First used on a bridge in Nebraska in 1997, the material has been used in Missouri, Ohio and Pennsylvania in concert with innovations like stay-in-place steel forms. Though more expensive than regular steel, HPS performs as well with less material required, resulting in overall cost savings. See the article in *Focus* at http://www.tfhrc.gov/focus/june05/01.htm.

Arizona Puts Rubberized Asphalt to Quiet Test

FHWA's Quiet Pavement Pilot Program has already found that the use of rubberized asphalt—a mix of aggregate, asphalt cement, and crumb rubber from tires—reduces traffic noise by five decibels in residential areas. Arizona DOT, which has recycled over 15 million tires since 1988 by using the material, will begin testing rubberized asphalt noise reduction on new freeway and residential roadway surfaces in December. See the *Focus* article at http://www.tfhrc.gov/focus/june05/03.htm.

States Vary Methods to Make SMA Work

As stone matrix asphalt gains acceptance in the United States, several states have developed solutions to the material's challenges. Virginia DOT is experimenting with using several distinct aggregate sizes in one mix, a process called fractionation. Indiana DOT has added steel furnace slag as an aggregate in its standard specifications for SMA, and South Dakota DOT is using a very hard quartzite aggregate to compensate for more flat and elongated particles than specifications usually allow. See the *Better Roads* article at http://www.betterroads.com/articles/jun05d.htm.

Operating/Optimizing the System

Kansas City-Area Communities Give Signal Coordination the Green Light

Twenty Kansas City-area communities are joining forces to coordinate traffic signals in hopes of reducing travel times and improving signal efficiency. The initial phase of Operation Green Light will include 600 signals by 2007. Pilot tests of 10 signals along a 1-mile stretch reduced the number of driver stops and improved travel times, saving an estimated $2 million annually through reduced fuel costs and travel times. Read more in the National Transportation Operations Coalition's ICDN newsletter at http://www.ntoctalks.com/icdn/op_greenlight.php.

Florida County Keeps Street Signs Straight

All 48,000 street signs in Charlotte County, Fla., are programmed into a computer to prevent a repeat of the confusion that followed Hurricane Charley. The 2004 storm wiped out many of the county's street signs, leaving operations crews scrambling to remember which road was First Street and which one Third Avenue. If the street signs are blown away again, county officials will refer to satellite tracking software to get things back to normal. Read the news story at http://www.nbc-2.com/articles/readarticle.asp?articleid=3524&z=3&p. Courtesy of Transportation Communications Newsletter.

MDSS Guides Winter Operations Decisions

FHWA's Maintenance Decision Support System links weather information with computerized winter road maintenance rules, helping winter operations managers make decisions about battling snow and ice. Iowa DOT, which first tested the software, estimates that using MDSS could save between 10% and 15% of its annual maintenance costs—about $3.5 million a year. *Better Roads* gives more details about the benefits of MDSS; see http://www.betterroads.com/articles/jun05b.htm.

Safe Travel/Smart Travel

Smart Parking System Saves You a Spot

California PATH researchers are field-testing a new service that allows dynamic management of parking spaces at the Rockridge Bay Area Rapid Transit District station in Oakland. The program, which allows drivers to reserve parking spots in advance and displays real-time transit parking information to highway drivers, is expected to help reduce traffic congestion by making transit a more practical, convenient travel option. Read more in Caltrans News at http://www.dot.ca.gov/ctnews/jun05/jun_smart.htm.

NYSDOT Truck Billboards Target Work Zone Safety

New York State DOT has unveiled a new work zone education initiative that uses trucks to display work zone safety messages. The trucks will also highlight the availability of www.travelinfony.com, a new Web site that gives travelers access to real-time traffic and road construction information. Read the news release at http://www.dot.state.ny.us/news/2005/60805.shtml.

Ramp Meters Trimming Rush Hour in Atlanta

Ramp meters that are set to recycle quickly and are backed by queue detectors appear to be shortening the duration of afternoon rush hour in downtown Atlanta by as much as 90 minutes. See the article in the National Transportation Operations Coalition's ICDN newsletter at http://www.ntoctalks.com/icdn/atlanta_rampmeters.php.

Happy Anniversary, 511

July 21 marks the five-year anniversary of the 511 traveler information dialing code designation by the Federal Communications Commission. The 511 Deployment Coalition has released its National Progress Report, which examines achievements of the 511 deployment effort to date, documents lessons learned, and highlights the coalition's 2010 goals. See the report at http://www.deploy511.org/docs/511%202005%20NPR%20Final.pdf.

Wi-Fi Network Moves Arizona Toward 'Smart Corridor' Goal

An Arizona project will allow first responders to communicate on a Wi-Fi network along a 30-mile stretch of the CANAMEX Corridor. The pilot project is part of a larger goal to transform the Arizona portion of the CANAMEX into a "smart corridor," showcasing technological solutions in areas such as traveler safety and rural telecommunications access. See the article in *Government Technology* at http://www.govtech.net/magazine/channel_story.php/94215, and read more about the smart corridor at the CANAMEX Web site at http://www.canamex.org/Pages/SMART_CORRIDOR.htm.

Knowledge-Based Systems for Traffic Control

A simulation study performed in California predicts that the use of automated decision support tools can decrease travel times by up to 29%. Investigators found that the traffic diversion strategies and signal control timing plan combinations recommended by Traffic Control Manager software would help traffic management center personnel reduce average travel time. See the U.S. DOT ITS Benefits Database at http://www.benefitcost.its.dot.gov/its/benecost.nsf/ByLink/BOTM-June2005.

HOT Plans Advance in Denver

Colorado DOT recently awarded the final contract for converting the I-25 high-occupancy vehicle lanes serving downtown Denver to high-occupancy toll lanes. HOT facilities allow single-occupant vehicles to use HOV lanes in exchange for an electronically collected toll. The facilities maximize the efficiency of HOV lanes by filling in excess space with no negative impacts to carpoolers or bus riders. Read more at the project's Web site at http://www.valuelanes.com/.

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